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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,966	06/13/2007	Vincent Marcantonio	15892.17	2688
22913	7590	09/21/2009		
Workman Nydegger 1000 Eagle Gate Tower 60 East South Temple Salt Lake City, UT 84111				
EXAMINER				
LI, AIQUN				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
09/21/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/598,966

Applicant(s)

MARCANTONIO ET AL.

Examiner

AIQUN LI

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 September 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/CIS-100)
- Paper No(s)/Mail Date 3/28/2007

- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

DETAILED ACTION

Claim Interpretation

1. The transitional phrase "being comprised essentially" in claim 1 has been interpreted as being synonymous with "comprising" since claim 8 uses comprising language (and would otherwise be not further limiting) and claim 11 says the diverter may or may not have a diluent.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. **Claims 7-9 and 12 are rejected under 35 U.S.C. 102(b)** as being anticipated by US Patent 5253709 (Kendrick).

Kendrick teaches a well treatment process that opens up the producing formation to allow a ready passage of formation fluids comprises: pumping a treating material including acidizing or hydraulic fracturing fluids into the formation through the perforations (col.3, line 25-36), selectively closing off those perforations through which the highly disproportionate share of materials are flowing (col.3, line 43-49) with ball sealers (col.3, line 63-68) under pressure (col.4, line 1-3), and reducing the pressure to the ball sealer from engagement with the perforations to establish flow of production (col.4, line 3-6 and col.3, line 25-36); wherein the ball sealer for sealing off perforations

comprises a wax material having a melting temperature lower than the operating temperature downhole but high enough to form a workable solid at room temperature, and a particulate matter (col.5, line 50-60), which reads on the diluent, wherein the particles and the wax are particularly selected so as to form ball sealers having approximately the same density as the well treatment fluid to be relative neutrally buoyant therein (col.6, line 1-7 and line 12-20).

Kendrick further teaches that the ball sealer is generally having a spherical configuration(col.5, line 5) with a diameter in the range of 18 to 26 mm (claim 16), and is forced against a perforation to thereby lodge within the perforation opening by the pressure of the fluid (claim 14 and col.1, line 59-63).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over Kendrick.

The teachings of Kendrick are detailed in the rejection of claims 7-9 and 12 under 35 USC 102(b) above.

Kendrick further teaches that the ball sealer is generally having a diameter in the range of 18 to 26 mm (claim 16), which overlaps the instantly claimed range.

It has been held that in the case where the claimed ranges "overlap or lie inside range disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F. 2d 257, 191 USPQ 90 (CCPA 1976). See MPEP 2144.05.I.

Generally, differences in ranges will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such ranges is critical. See MPEP 2144.05, *In re Boesch*, 617 F2d 272, 205 USPQ 215 (CCPA 1980); *In re Aller*, 220 F2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) and *In re Hoeschele*, 406 F2d 1403, 160 USPQ 809 (CCPA 1969).

7. **Claim 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6380138 (Ischy) in view of US Patent 2728395 (Howard), both of which are cited as X document in the international search report and also cited in the information disclosure.

Ischy teaches a method of manufacturing a ball sealer used for temporarily sealing casing perforations during well bore stimulation treatments (col.1, line 10-15)

including multiple zone well (col.11, line 12-15) comprises a injection molding process (col.6, line 53-55), wherein a slurry of mixture is injected into the mold or pouring into thin slabs (col. 8, line 35-52), the resulting ball is a round, solid, smooth surfaced seal ball (col.6, line 64-67) with a specific gravity close to the fluid being used in the wellbore (col.8, line 53-56), and the diameter of the mold should be chosen to meet the sealing condition that the ball perform under, i.e., sealing perforations (col.9, line 43-45).

Ischy does not teach wax as the material to make the ball sealer.

Howard teaches harder waxes including yellow beewax, carnauba wax, shellac wax, sugar cane wax or microcrystalline hydrocarbon waxes as a temporary sealing agent for plugging the pores of the formation (col.3, line 40-50) that melts at formation temperature after a suitable delay, or melts above the formation temperature and removable by a hot solvent (col.3, line 40-45).

At the time the invention was made it would have been obvious for a person of ordinary skill in the art to employ Howard's wax material in the process of Ischy. The rationale to do so would have been the motivation provided by the teaching of Howard that to do so would predictably provide a sealer that is removable (col.3, line 35-45).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent 6367548 (Purvis) disclose a wax diverting agent Divert VI used during stimulation treatment, which can provide effective sealing of natural fractures and is compatible with the environment.

PG Pub US 2003/0060375 (Grainger) discloses wax balls as diverting agents during stimulation of hydrocarbon wells.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AIQUN LI whose telephone number is (571)270-7736. The examiner can normally be reached on Monday -Thursday, 9:30 am - 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on (571)2721498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AL/

/Timothy J. Kugel/

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Primary Examiner, Art Unit 1796